

Not Relevant

39. MGE06/97CS

Further Development of Torrens Island Power
Station
APPROVED

Premier and Cabinet Minister

CABINET COVER SHEET

- | | |
|---|--|
| 1 TITLE: | Further Development of Torrens Island Power Station |
| 2 MINISTER: | Hon Dr Michael Armitage MP
Minister for Government Enterprises |
| 3 PURPOSE: | To seek Cabinet approval in principle for the further development of Torrens Island Power Station (TIPS) to provide additional generating capacity. |
| 4 RESOURCES REQUIRED FOR IMPLEMENTATION: | Within existing Commercial Sector Budget allocations. |
| 5 RELATIONSHIP TO GOVERNMENT POLICY: | Not applicable - Commercial Sector investment proposal. |
| 6 CONSULTATION: | Department of Treasury and Finance
Environment Protection Authority
Department of Human Services (DHUD)
Office of Energy Policy
Department of Industry and Trade (EDA)
Energy Sector Coordinating Committee
ETSA Transmission Corporation |
| 7 FAMILY IMPACT STATEMENT | Nil |
| 8 URGENCY: | Urgent - Any delay in approval will cause slippage and may result in a shortage of capacity during the summer of 2000/01. |
| 9 RECOMMENDATION: | <p>It is recommended that Cabinet:</p> <p>4.1 Endorse Optima proceeding to call for tenders for the provision of additional generating capacity at TIPS subject to the following conditions:</p> <ul style="list-style-type: none"> • that detailed investigation needs to be undertaken in relation to alternative options, specifically: <ul style="list-style-type: none"> (i) extending the life of Playford B (ii) pursuing the augmentation of the Heywood/Victoria interconnect by 150 MW, and (iii) installing open cycle/conventional gas peaking turbines (including a staged installation with repowering/combined cycle proposals at TIPS); |

- that the pre-qualification/preliminary documentation be fully reviewed by the ERSU advisers and confirmation obtained that it in no way binds or limits future flexibility to proceed with subsequent stages;
- that a suitable strategy is developed to manage communication in relation to the project in regard to the ACCC and potential new entrant independent power producers who will be concerned about the strengthening of Optima's market power should the project proceed;
- that ERSU and Morgan Stanley/Pacific Road representatives be included on the team reviewing and clarifying preliminary bids;
- that Optima not proceed to receive detailed and final tenders from a short list of tenderers without the prior approval of the Minister.

4.2 Note that the final commitment to proceed with this project, will be subject to further Optima Board and Cabinet approvals based on the outcome of the tender process and the market conditions and other circumstances prevailing at that time.

SIGNATURE

Michael Annet

PORTFOLIO:

MINISTER FOR GOVERNMENT ENTERPRISES

DATE:

15-5-98

TO: THE PREMIER FOR CABINET

RE: FURTHER DEVELOPMENT OF TORRENS ISLAND POWER STATION

1. PROPOSAL

That Cabinet:

- 1.1. Endorse Optima proceeding to call for tenders for the provision of additional generating capacity at TIPS subject to the following conditions:
 - that detailed investigation needs to be undertaken in relation to alternative options, specifically:
 - (i) extending the life of Playford B
 - (ii) pursuing the augmentation of the Heywood/Victoria interconnect by 150 MW, and
 - (iii) installing open cycle/conventional gas peaking turbines (including a staged installation with repowering/combined cycle proposals at TIPS);
 - that the pre-qualification/preliminary documentation be fully reviewed by the ERSU advisers and confirmation obtained that it in no way binds or limits future flexibility to proceed with subsequent stages;
 - that a suitable strategy is developed to manage communication in relation to the project in regard to the ACCC and potential new entrant independent power producers who will be concerned about the strengthening of Optima's market power should the project proceed;
 - that ERSU and Morgan Stanley/Pacific Road representatives be included on the team reviewing and clarifying preliminary bids;
 - that Optima not proceed to receive detailed and final tenders from a short list of tenderers without the prior approval of the Minister.
- 1.2. Note that the final commitment to proceed with this project, will be subject to further Optima Board and Cabinet approvals based on the outcome of the tender process and the market conditions and other circumstances prevailing at that time.

2. BACKGROUND

- 2.1. The original Cabinet paper on the TIPS Repowering tender was deferred. The proposal has now been discussed with ERSU and their advisers Morgan Stanley/Pacific Road. 7(1)(b) Commercial value [REDACTED] To protect the sale process, ERSU and its advisers have proposed a range of conditions which have been included as caveats in Recommendation 4.1.
- 2.2. Despite the CUBE cogeneration project at Osborne coming on line in July 1998 and an assumption that the SANI (Riverlink) interconnection with NSW will proceed and be available from December 1999, forecasts of electricity demand demonstrate that it is a near certainty that additional generating capacity will be required in South Australia prior to the summer of 2000/01. A business opportunity, therefore, exists which Optima can meet in a cost effective manner by enhancing the generating capacity at TIPS.
- 2.3. A feasibility study has been undertaken to examine the options for the development of TIPS that would take advantage of the existing assets and infrastructure, and that would provide cost savings compared with other alternatives for future generating options in South Australia. The study has indicated that the most economic option is to "repower" one or more of units at TIPS.
- 2.4. "Repowering" refers to the modification of existing steam turbine generating plant at TIPS to "combined cycle" plant. This involves the replacement of the existing boiler with a Heat Recovery Steam Generator (HRSG) that uses the waste heat from a new Gas Turbine (GT) generator set to provide steam to the existing steam turbine generator. This has the potential to increase the capacity of the existing 120 MW generating unit by up to 280 MW, while improving the efficiency of the plant from typically 33% to up to 50%.
- 2.5. The cost of the project will only be known when the optimum plant configuration has been determined through the tender process. A budgetary estimate of \$220 million was included in the State Budget, tabled in Parliament in May 1997. However, more recent discussions with potential equipment suppliers, suggests that a number of less expensive options exist to provide the next increment of generating capacity in South Australia. A cost in the range of \$140 million to \$180 million is now considered achievable.
- 2.6. The investment in repowering is not a new proposal. The capacity shortfall was contemplated at the time of separation of Optima from ETSA and it was envisaged the additional capacity provided by repowering a unit or units at TIPS would be required to ensure reliability of supply. The investment was included in the separation financial modelling and Optima was provided with the balance sheet capability to fund the project.

- 2.7. 7(1)(b) Commercial value [REDACTED]
- 2.8. Cabinet approval is sought, at this time, as it is appropriate for such a major investment that the shareholder be involved. Additionally, the external costs of issuing the tender will be approximately \$500,000 which represent a material amount and Optima would be hesitant to commit to such costs without the in principle approval of Optima's shareholder.

3. DISCUSSION

State Generating Capacity Issues

- 3.1. The capacity issue in South Australia is critical. The CUBE cogeneration project at Osborne will come on line in July 1998, providing temporary relief, but all projections indicate additional generating capacity will be required in South Australia prior to the summer of 2000/01.
- 3.2. If the investment in SANI (Riverlink) proceeds it will provide access to overcapacity in the eastern states while that overcapacity exists. However, repowering will provide a reliable and competitive capacity and energy solution to the capacity shortfall from within South Australia.
- 3.3. SANI (Riverlink) and Repowering are complementary projects. In evaluating the investment in repowering it has been assumed that the investment in SANI (Riverlink) proceeds ahead of Repowering and is operational in December 1999. Indeed, SANI (Riverlink) provides an increased market opportunity for the repowered unit to sell energy into the eastern states. Repowering is a necessary and viable project which will lead to a reduction in energy cost in South Australia .

Technical

- 3.4. A number of options for the addition of an additional increment of capacity at TIPS have been examined, including:
- Repowering a single unit;
 - Repowering two or more units;
 - Developing a "brownfields" combined cycle (CC) plant north of the existing power station (the term "brownfields" plant refers to "greenfields" or new plant on an existing site with developed infrastructure).

- 3.5. These options have been evaluated and “repowering” has been determined as the most economic SA generating option. However, it is proposed that the Request for Tender would permit tender respondents to put forward innovative proposals allowing the selection of the optimum configuration that maximises the overall short and long term return to the owner.

Timetable

- 3.6. The timeframes involved (outlined below) are such that a phased approach is being suggested with the tendering process continuing under the clear understanding of all involved that neither Optima nor the Government is committed to proceeding with the project at the completion of the tender evaluation.
- 3.7. The minimum time frames required for the tender process, award of contract, design construction and commissioning of the plant are considered to be:
- Tendering process
(issue of 1st public documentation to award of contract) 6 months
 - Award of contract to commercial use 24 months

Reduction of these time frames will result in viable options being excluded and an escalation of the risks and costs associated with those that remain.

- 3.8. In order to achieve this timetable Cabinet endorsement for the project is required immediately. The lead times on equipment supply and the time required for construction, installation and commissioning are such that even a short delay will result in the repowered unit not being available until the summer of 2001/02. Given the criticality of generating capacity in South Australia a timely decision is required to avoid the probability that black outs will occur for significant periods during times of peak demand.
- 3.9. A secure regional supply for South Australia should have a ready reserve capacity of at least 500 MW over the expected peak summer demand. The new peak demand for SA was set at 2400 MW in February 1997, but in the early summer of 1997/98 this peak demand was tested. It is highly probable that the peak demand will continue to grow at an annual rate of 4% or higher. Since 1990, the annual growth has been 4%.
- 3.10. The interconnection with Victoria has a maximum capacity of 500 MW but is vulnerable on two key fronts:
- extreme weather conditions can force the line out of service, and
 - coincident peak demands in Victoria are very likely and will limit the capacity available to South Australia.
- The same issues will apply to SANI (Riverlink) in the medium to longer term.

The following table is a simple summary of this supply and demand situation over the next 5 years for South Australia. The interconnector is included at a reduced capacity equivalent of 350 MW, as a recognition of the limitation on its security of supply.

Summer Demand Forecast (4% annual growth) plus 500 MW Reserve		Supply (Interconnector at 350 MW)	Shortfall in Reserve
February 1997	2400+500=2900 MW		
97/98	3000 MW	2640 MW	360 MW
98/99	3100 MW	2815 MW (CUBE 175 MW)	285 MW
99/00	3200 MW	2815 MW	385 MW
00/01	3300 MW	2815 MW (TIPS Repowering +180 MW; Playford retired -180 MW)	485 MW
01/02	3400 MW	2815 MW	585 MW

It is evident that even allowing for the CUBE and the Torrens Island Repowering, South Australia will need an additional capacity of 300 to 600 MW for a secure regional supply to be achieved over the next five years.

Financial Evaluation

3.11. Various repowering options have been modelled and evaluated, ranging in size from 280 MW to 330 MW and cost from \$140 million to \$180 million. The financial data which follows is for a 280 MW plant and a cost of \$145 million.

3.12. 7(1)(b) Commercial value



3.13. One of the major benefits of the project arises from the dramatically increased efficiency of the new plant from typically 33% to 50% resulting in significant fuel savings. A repowered unit, displacing 1,000 GWh of generation from existing TIPS plant, will save more than \$10 million annually in fuel costs.

3.14. Key assumptions are as follows:

- Capital cost \$145 million
- Repowered plant capacity 280 MW
- Gas price \$3.00/GJ indexed at 95% of CPI
- Electricity price (real) Increasing from \$30/MWh in 2000/01 to \$36/MWh from 2004/05 to end of project life
- Nominal after tax hurdle rate 12%
- Tax depreciation 20% declining balance
- Plant capacity factor 70%
- Evaluation period 20 years
- Inflation 3% p.a.
- New repowered unit fully commissioned 2000/2001
- Base (“do-nothing”) case assumes a competitive generating capacity investment in South Australia.
- Repower case and base case both assume SANI (Riverlink) established.

3.15. The sensitivity of the project returns has been tested against movements in a number of key variables, as follows:

7(1)(b) Commercial value



3.16. As would be expected the investment is sensitive to movements in these key variables. However, the overall assumptions adopted in the financial evaluation of the project are considered to be conservative, hence the sensitivity should be viewed more in the context of potential upside rather than investment risk.

Strategic Objectives

3.17. Optima's main strategic objectives in investing in TIPS Repowering are:

7(1)(b) Commercial value



3.18.

Further Approval

3.19. Further Cabinet approval will be sought on any decision to be made at the completion of the tender evaluations.

State Development, Social and Environmental Impacts

3.20. Optima is confident that TIPS redevelopment provides the lowest cost option for power generation within South Australia. It is considered that the project is viable with the SANI (Riverlink) established, on the basis of being able to support a competitive position in relation to the low cost fuels of the eastern states for a significant proportion of the daily and seasonal cycles. The project, therefore, should provide the lowest cost option for the provision of electricity supply to the State, with the corresponding associated economic benefits.

3.21. Optima's analysis of the project has focussed on the commercial benefits to the corporation. However, the Department of Industry and Trade (EDA) has identified the following additional benefits to the State in relation to the repowering project:

- creates 200 jobs during construction;
- creates 452 spin off jobs in South Australia;
- reduction in cost of electricity production by around 6%;
- \$144 million of additional business in South Australia.

- 3.22. The repowering of TIPS also creates an opportunity for the development of an energy park, for energy intensive industries such as Visy Paper, Charlicks, Palmer Tubemills and others interested in expansion of their business adjacent to Torrens Island, where they could gain access to competitively priced energy.
- 3.23. Repowering TIPS plant results in a number of environmental improvements for the Optima portfolio:
- Carbon Dioxide (CO₂) emissions per MWh are reduced because of the higher efficiency of the plant, and the use of natural gas as a fuel. The lower CO₂ emissions from a repowered generating unit equate to a reduction of about 300,000 tonnes of CO₂ per year. Australia is a signatory to the International Convention on Climate Change (focusing on reducing greenhouse emissions), and repowering makes a positive contribution to meeting the obligations under the convention.
 - Existing plant at Torrens Island discharges cooling water to the marine environment at a maximum of 7°C above ambient ('A' Section) and a maximum of 11°C above ambient ('B' Section). The Environmental Protection (Marine) Policy 1994 requires that by the year 2001 emissions to the environment should not exceed a weekly average of 2°C above ambient. Although TIPS has a current licensed exemption from this requirement, repowering will reduce thermal emissions per MWh enhancing Optima's ability to meet future requirements.
 - Because of the gas turbine technology involved with repowering, Nitrogen Oxide (NO_x) emissions per MWh will be significantly reduced compared to existing Torrens Island plant.

Consultation

- 3.24. Officers from the Department of Treasury and Finance have been extensively consulted regarding the evaluation of this investment and consideration of potential commercial structures and have provided considerable input, comment and assistance for which Optima Energy is most grateful.
- 3.25. The following Government agencies and departments have also been consulted:
- Environmental Protection Authority
 - Department of Human Services (DHUD)
 - Office of Energy Policy
 - Department of Industry and Trade (EDA)
 - Energy Sector Coordinating Committee
 - ETSA Transmission Corporation

4. RECOMMENDATIONS

It is recommended that Cabinet:

4.1. Endorse Optima proceeding to call for tenders for the provision of additional generating capacity at TIPS subject to the following conditions:

- that detailed investigation needs to be undertaken in relation to alternative options, specifically:
 - (i) extending the life of Playford B
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In Cabinet

Michael Armitage

Hon Dr Michael Armitage MP
MINISTER FOR GOVERNMENT ENTERPRISES

Date: *19.5.98*

19 MAY 1998

APPROVED
<i>[Signature]</i>
PREMIER